CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2012-XXXX

FOR
EL DORADO IRRIGATION DISTRICT
CAMINO HEIGHTS WASTEWATER TREATMENT FACILITY
EL DORADO COUNTY

This Monitoring and Reporting Program (MRP) presents requirements for monitoring of wastewater influent, ponds, effluent, land application areas (LAAs), groundwater, sludge, and water supply. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

Central Valley Water Board staff shall approve specific sampling locations prior to any sampling activities. All samples shall be representative of the volume and nature of the discharge. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

Field testing instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1 The operator is trained in proper use and maintenance of the instruments;

2 The instruments are calibrated prior to each monitoring event;

3 The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency;

4 Field calibration reports are submitted as described in the "Reporting" section of this MRP.

INFLUENT MONITORING

Influent samples shall be collected at the headworks prior to treatment. Grab samples will be considered to be representative of the influent. Influent monitoring shall include, at a minimum the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	gpd	Meter Observation	Daily	Monthly
BOD_5 [1]	mg/L	Grab	Monthly	Monthly
Electrical Conductivity	µmhos/cm	Grab	Monthly	Monthly

[1] 5-day biochemical oxygen demand.

POND MONITORING

Samples shall be collected from an established sampling station located in an area that will provide a sample representative of the wastewater in each pond. Freeboard shall be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.1 feet. Monitoring of all ponds shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
pH	Standard Units	Grab	Weekly	Monthly
Dissolved Oxygen [1]	mg/L	Grab	Weekly	Monthly
Electrical Conductivity	µmhos/cm	Grab	Monthly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Berm condition [2]	--	Observation	Weekly	Monthly

[1] Samples shall be collected at a depth of one foot, opposite the inlet.
[2] Containment berms shall be observed for signs of seepage or surfacing water along the exterior toe of the berms.

EFFLUENT MONITORING

Effluent monitoring is required only during months when effluent is discharged to the LAAs. Effluent samples shall be representative of the treated wastewater prior to discharge to the LAAs after full chlorine contact has been achieved. The effluent samples shall be obtained from the effluent monitoring point immediately downstream of the chlorine contact tank. At a minimum, effluent monitoring shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Total Coliform Organisms [1]	MPN [2]/100 mL	Grab	Weekly	Monthly
Electrical Conductivity	µmhos/cm	Grab	Weekly	Monthly
Total Nitrogen	mg/L	Grab	Monthly	Monthly
BOD_5	mg/L	Grab	Monthly	Monthly
pH	pH units	Grab	Monthly	Monthly
Standard Minerals [2]	mg/L	Grab	Annually	Annually

[1] Using a minimum of 15 tubes or three dilutions.
[2] Standard minerals shall include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total dissolved solids, total alkalinity (including alkalinity series), and hardness.

LAND APPLICATION AREA MONITORING

The LAA monitoring program applies to the subsurface drip irrigation area and the spray field. The monitoring shall be conducted daily when the LAAs are used. Evidence of erosion, field saturation, irrigation runoff, or the presence of nuisance conditions shall be noted in the report. Effluent monitoring results shall be used in calculations to determine loading rates at the LAAs. Monitoring of the LAAs shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow to each LAA[1]	gpd	Meter Observation	Daily	Monthly
Acreage Applied	Acres	Calculated	Daily	Monthly
Water Application Rate [2]	Inches/day	Calculated	Daily	Monthly
Storm Water and Tailwater Return Flow	gpd	Meter Observation	Daily	Monthly
Rainfall [3]	Inches	Observation	Daily	Monthly
Total Nitrogen Loading Rate [2]	lbs/ac/month	Calculated	Monthly	Monthly
LAA Berm Condition	NA	Observation	Weekly	Monthly

[1] Flows to the subsurface drip irrigation area and the spray field shall be monitored separately.
[2] Average calculated for each LAA.
[3] Rainfall data collected from the weather station that is nearest to the LAAs or a properly maintained on-site rain gauge.

At least **once per week** when the LAAs are being used, the LAAs shall be inspected to identify any equipment malfunction or other circumstances that might allow tailwater or storm water runoff to leave the irrigation area and/or create ponding conditions that violate the Waste Discharge Requirements. A daily log of each inspection shall be kept at the facility and be submitted with the monthly monitoring reports. Photocopies of entries into an operator's field log are acceptable. The monthly report shall clearly states whether or not the LAAs were used during that month.

GROUNDWATER MONITORING

This monitoring program applies to all existing groundwater monitoring wells MW1A, MW2, MW3, MW4, and MW5A, and any wells subsequently installed under direction of the Central Valley Water Board. Sampling of well MW-1A is not required, but it shall be monitored for groundwater elevation. Groundwater sampling shall be conducted quarterly for two years and then can be changed to semi-annually. Semi-annual groundwater monitoring shall occur in the first and the third quarter of each calendar year. Prior to sampling, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. Samples shall be collected and analyzed using approved EPA methods or other methods approved by the Central Valley Water Board. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Groundwater Elevation [1]	0.01 Feet	Calculated	Quarterly [4]	Semi-annually
Depth to Groundwater	0.01 Feet	Measurement	Quarterly [4]	Semi-annually
Gradient	Feet/Foot	Calculated	Quarterly [4]	Semi-annually
Gradient Direction	Degrees	Calculated	Quarterly [4]	Semi-annually
Total Coliform Organisms [2]	MPN/100mL	Grab	Quarterly [4]	Semi-annually
pH	Standard Units	Grab	Quarterly [4]	Semi-annually

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Electrical Conductivity	µmhos/cm	Grab	Quarterly [4]	Semi-annually
Total Dissolved Solids	mg/L	Grab	Quarterly [4]	Semi-annually
Nitrate as N	mg/L	Grab	Quarterly [4]	Semi-annually
Standard Minerals [3]	mg/L	Grab	Annually	Semi-annually

[1] Groundwater elevation shall be based on depth-to-water using a surveyed measuring point elevation on the well and a surveyed reference elevation.
[2] Using a minimum of 15 tubes or three dilutions.
[3] Standard Minerals shall include, at a minimum, the following elements and compounds: boron, calcium, chloride, iron, magnesium, manganese, nitrogen, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.
[4] Sampling shall be conducted quarterly for eight consecutive quarters and semi-annually thereafter.

SLUDGE MONITORING

The Discharger shall monitor sludge accumulation in the wastewater treatment and storage ponds at least every five years **beginning in 2013.**

A composite sample of sludge shall be collected at least once per year when sludge is removed from the wastewater treatment system for disposal in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and analyzed for cadmium, copper, nickel, chromium, lead, and zinc.

Sludge sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following for each water source used during the previous year. As an alternative to annual water supply monitoring, the Discharger may submit results of the most current Department of Public Health Consumer Confidence Report.

Constituent	Units	Sampling and Reporting Frequency
Total Dissolved Solids	mg/L	Annually
Electrical Conductivity	µmhos/cm	Annually
pH	Standard Units	Annually
Standard Minerals [1]	mg/L	Annually

[1] Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, nitrogen, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, reservoir, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board by the **1st day of the second month** following the end of the reporting period (i.e. the January monthly report is due by 1 March). At a minimum, the reports shall include:

1. Results of the influent, effluent, ponds, and LAA monitoring (effluent monitoring is only required during months when effluent is discharged to the LAAs);

2. Average daily influent flow for the month, the maximum average daily influent flow for the year to date, and cumulative annual influent flow to date;

3. If effluent was discharged to the LAAs, the calculated median effluent total coliform concentration for the month. A rolling four-week median concentration shall be used to determine compliance with the effluent limit for months during which discharge to the LAAs did not occur every week, otherwise the median of all results for the month shall be calculated;

4. Copies of inspection logs;

5. A comparison of the monitoring data to the discharge specifications and an explanation of any violation of those requirements;

6. Copies of laboratory analytical report(s); and

7. Copies of current calibration logs for all field test instruments.

B. Semi-Annual Monitoring Report

Semi-annual monitoring reports shall be submitted to the Central Valley Water Board by the **1st day of August** (for the first six months of the year) and **February the following year** (for the last six months of the year). The Semi-Annual Monitoring Reports shall include the following:

1. Results of groundwater monitoring for all monitoring and sampling events during the last six months;

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. For each monitoring event:

    a. Calculation of groundwater elevations, determination of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any; and

    b. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).

4. A comparison of the monitoring data to the groundwater limitations and an explanation of any violation of those requirements;

5. Summary data tables and graphs of historical and current water table elevations and analytical results;

6. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and

7. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

In addition to the monthly and semi-annual monitoring reports, an Annual Report shall be prepared. The Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year. The Annual Report shall include the following:

1. The results from annual monitoring of the effluent, groundwater, and water supply;

2. Average dry weather influent flow for the year, the maximum average daily influent flow for the year, and total annual influent flow for the year;

3. Tabular summaries of data collected during the year;

4. A digital database (Microsoft Excel) containing historic groundwater and effluent data;

5. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow rates, nuisance conditions, and a forecast of the flows anticipated in

the next year;

6. An *Annual Groundwater Quality Evaluation Report*, which shall determine if the discharge has caused or is likely to cause violation of the Groundwater Limitations of the WDRs. The evaluation shall be based on historic groundwater data using intra-well methods described in Title 27, section 20415(e)(10). The report shall identify constituents of concern, and evaluate the impacts of WWTF operation and changes in groundwater quality. A comparison of the groundwater concentrations and annual average effluent concentrations is required. All groundwater evaluations shall be prepared under the direct supervision of a registered Professional Engineer or Geologist and signed by the registered professional;

7. Effective **2013** and every five years thereafter, an evaluation of sludge volume as percentage of permitted pond capacity;

8. If applicable, sludge sampling results and the volume of sludge removed during the year; and the means of off-site sludge disposal;

9. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;

10. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;

11. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the Discharger is in compliance with California Code of Regulations, title 23, division 3, chapter 26;

12. A forecast of influent flows, as described in Standard Provision No. E.4; and

13. A statement of when the O&M Manual was last reviewed for adequacy, and a description of any changes made during the year.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

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(Date)

LF/alo: 5/10/2012